Title: Enhancement of the antibacterial activity of an *E. faecalis* strain by the heterologous expression of enterocin A

Authors: Carlos Eduardo Serrano-Maldonado, Maricarmen Quirasco

PII: S0168-1656(18)30523-6
DOI: https://doi.org/10.1016/j.jbiotec.2018.06.346
Reference: BIOTEC 8203

To appear in: *Journal of Biotechnology*

Received date: 11-2-2018
Revised date: 31-5-2018
Accepted date: 25-6-2018

Please cite this article as: Serrano-Maldonado CE, Quirasco M, Enhancement of the antibacterial activity of an *E. faecalis* strain by the heterologous expression of enterocin A, *Journal of Biotechnology* (2018), https://doi.org/10.1016/j.jbiotec.2018.06.346

Enhancement of the antibacterial activity of an *E. faecalis* strain by the heterologous expression of enterocin A

Carlos Eduardo Serrano-Maldonado and Maricarmen Quirasco*.

Departamento de Alimentos y Biotecnología, Facultad de Química, Universidad Nacional Autónoma de México. Ciudad Universitaria, Cd. México, 04510 México.

Corresponding author: Maricarmen Quirasco. Departamento de Alimentos y Biotecnología, Facultad de Química, Universidad Nacional Autónoma de México. Ciudad Universitaria, Cd. México. 04510 México. e-mail: quirabma@unam.mx. Telephone: +5556225344.

Highlights

- An allelic exchange method was used to clone the enterocin A in an *E. faecalis* strain.
- Recombinant *E. faecalis* does not require inductors to express enterocin A.
- The modified strain was active against *S. aureus, L. monocytogenes* and *E. faecalis*.
- The modified enterococcal strain reduced two-log of *Listeria* counts in co-culture.
- The improved strain is useful in food due to its metabolic and antibacterial traits.

Abstract

The genus *Enterococcus* occurs as native microbiota of fermented products due to its broad environmental distribution and its resistance to salt concentrations. *Enterococcus faecalis* F, a non-pathogenic strain isolated from a ripened cheese, has demonstrated useful enzymatic capabilities, a probiotic behavior and antibacterial activity against some food-borne pathogens, mainly due to peptidoglycan hydrolase activity. Its use as a natural pathogen-control agent could be further enhanced through the production of a bacteriocin, *e.g.* Enterocin A, because of its